

Project 3.7.5

Socio-economic constraints to and incentives for the adoption of land use and management options for water quality improvement

Project Leader

Peter C. Roebeling

Project Overview (I)

- **Issue:**
 - Water pollution in GBR catchments
 - Land use and management options for water quality improvement
 - Private costs – social benefits – limited funds
 - Adoption of most cost-effective ('best') land use and management options for water quality improvement
- **Research aims and objectives:**

Evaluate the socio-economic constraints to, risks associated with and drivers for the adoption of land use and management options for water quality improvement, to identify instruments that are most effective in promoting the adoption of these 'best' land use and management options

Project Overview (II)

- Theoretical foundation/approach research:
 - Theories of Reasoned Action and Planned Behaviour (Ajzen & Fishbein, 1980, 1995)
 - Diffusion theory (Rogers, 1995)

 - Farm Household and Agent Based approaches (Singh et al., 1986; Ballman, 1997; Parker et al., 2002)

 - Social Network Theory (Newman & Dale, 2005; Bodin et al., 2006)

Key People

- Research Team:

Title	Organisation	Role	
Peter Roebeling	CSIRO	Project leader and Environmental Economist	
Iris Bohnet	CSIRO	Social ecologist	
Peter Thorburn	CSIRO	Cropping systems scientist	
Tony Webster	CSIRO	Agronomist	
Geoff McDonald	CSIRO	Institutional analysis and link to Project 4.9.6	
Ryan McAllistar	CSIRO	Systems modeler	
Tilak Mallawaarachchi	ABARE	Survey design and link to Project 3.7.6	
Richard Pearson	JCU	Water quality indicators and link to Project 3.7.3	
Mark O'Donohue	FNQ-NRM	End-user input	

- Stakeholder groups/end users:
 - Industries, extension services, DPI&F, NRM bodies, JCU, AIMS, GBRMPA, ABARE
 - Local governments, regional NRM bodies, DEH

Methodology

- **Land use and management characterization:**
 - Literature review and production systems simulation modelling
- **Agent characterization:**
 - Survey and in-depth interviews re. agents' profile, aspirations, and knowledge, attitudes and practices
- **Community structure and network characterization:**
 - Institutional analysis, stakeholder mapping, KIs and FGDs
- **Farm household and agent models:**
 - Single-agent modelling relating resource use and management decisions to technology, knowledge, attitudes and practices, resource availability and conditions
- **Multi-agent modelling and social network analysis:**
 - Multi-agent interactions based on social, economic and institutional relationships and networks

Project Timeframes

Output / Milestone	Date / Timing
Cost-effectiveness assessment of land use and management options for the Wet Tropics case study	06/2008
Cost-effectiveness assessment of land use and management options for the Dry Tropics case study	06/2009
Agent profile, characterisation and stratification for the Wet Tropics case study	09/2008
Agent profile, characterisation and stratification for the Dry Tropics case study	09/2009
Community/institutional profile, characterisation and stratification for the Wet Tropics case study	12/2008
Community/institutional profile, characterisation and stratification for the Dry Tropics case study	12/2009
Assessment of instruments promoting the adoption of 'best' land use and management options for the Wet Tropics case study	06/2009
Assessment of instruments promoting the adoption of 'best' land use and management options for the Dry Tropics case study	06/2010

Key Research Outcomes

- **Science impact:**
 - Integration social-psychology and bio-economic approaches
 - Social-environmental network theory development
 - Application to natural resource management issues
- **Community impact:**
 - Ability to identify and assess instruments for promoting the adoption of 'best' land use and management options
 - Inform community specific policy development and timing
 - Enhanced adoption of 'best' land use and management options for water quality improvement